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\*Admitted only in Maryland  
\*Admitted only in Virginia  
\*Practice limited to  
Federal Agencies

JPW

August 12, 2004

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Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

**Art Unit 2826**

Re: U.S. Utility Patent Application  
Appl. No. 10/730,093; Filed: December 9, 2003  
For: **Method for Making an Enhanced Die-Up Ball Grid Array Package  
With Two Substrates**  
Inventors: Zhao *et al.*  
Our Ref: 1875.1730001

Sir:

Transmitted herewith for appropriate action are the following documents:

1. Information Disclosure Statement;
2. Form PTO-1449 citing documents (24 sheets);
3. Copies of six of the cited documents on Form PTO-1449 (AM3, AJ4, AK4, AL4, AR4, AP5, AP23, AQ23, AR23); and
4. One (1) return postcard.

It is respectfully requested that the attached postcard be stamped with the date of filing of these documents, and that it be returned to our courier. In the event that extensions of time are necessary to prevent abandonment of this patent application, then such extensions of time are hereby petitioned.

Commissioner for Patents  
August 12, 2004  
Page 2

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

A handwritten signature in black ink, appearing to read "Jeffrey S. Weaver", is written over a horizontal line.

Jeffrey S. Weaver  
Attorney for Applicants  
Registration No. 45,608

RES/JSW:asl  
Enclosures

290676\_1.DOC



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

ZHAO *et al.*

Appl. No.: 10/730,093

Filed: December 9, 2003

**For: Method for Making an Enhanced  
Die-Up Ball Grid Array Package  
With Two Substrates**

Confirmation No.: 2792

Art Unit: 2826

Examiner: Williams, Alexander O.

Atty. Docket: 1875.1730001

**Information Disclosure Statement**

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98.

Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent

application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Applicants have checked the appropriate boxes below.

- ☐ 1. Statement under 37 C.F.R. 1.704(d). Each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.
- ☒ 2. Filing under 37 C.F.R. § 1.97(b). This Information Disclosure Statement is being filed before the mailing date of a first Office Action on the merits. No statement or fee is required.
- ☐ 3. Filing under 37 C.F.R. § 1.97(c). This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection, or Notice of Allowance, or an action that otherwise closes prosecution in the application.
  - ☐ a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

- ☐ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).
- ☐ c. Attached is our PTO-2038 Credit Card Payment Form in the amount of \$\_\_\_\_\_ in payment of the fee under 37 C.F.R. § 1.17(p).
- ☐ 4. Filing under 37 C.F.R. § 1.97(d) This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but before payment of the Issue Fee. Enclosed find our PTO-2038 Credit Card Payment Form in the amount of \$\_\_\_\_\_ in payment of the fee under 37 C.F.R. § 1.17(p); in addition:
- ☐ a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).
- ☐ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign

application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

☐ 5. The document(s) was/were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided in satisfaction of the requirement for a concise explanation of relevance. 1138 OG 37, 38.

☒ 6. A concise explanation of the relevance of the non-English language documents appears below:

Document AK1 (JP 61-49446 A) appears to describe a resin seal type semiconductor device. An English-language abstract of document AK1 is document AO6.

Document AL1 (JP 7-283336 A) appears to describe a chip carrier. An English-language abstract of document AL1 is document AP6.

Document AM1 (JP 10-50877 A) appears to describe a semiconductor package. An English-language abstract of document AM1 is document AO5.

Document AJ2 (JP 10-189835 A) appears to describe a semiconductor package and its assembling method. An English-language abstract of document AJ2 is document AQ4.

Document AK2 (JP 10-247702 A) appears to describe a ball grid array package and printed board. An English-language translation of document AK2 is enclosed as document AR4.

Document AL2 (JP 10-247703 A) appears to describe a ball grid array package and printed board. An English-language abstract of document AL2 is document AN5.

Document AM2 (JP 11-17064 A) appears to describe a semiconductor package. An English-language abstract of document AM2 is document AQ5.

Document AJ3 (JP 11-102989 A) appears to describe a BGA semiconductor device. An English-language translation of document AJ3 is enclosed as document AP5.

Document AK3 (JP 2000-286294 A) appears to describe a semiconductor device and its manufacture. An English-language abstract of document AK3 is document AR5.

Document AL3 (JP 2001-68512 A) appears to describe a tab tape with stiffener and BGA package. An English-language abstract of document AL3 is document AN6.

Document AJ4 (FR 2 803 098 A3) appears to describe a heat sink for a plastic ball grid array. An English-language abstract of document AJ4 is enclosed as document AQ23.

Document AK4 (TW 383908) appears to describe structure of a circuit board for mounting a microelectronic device. Document AK4 was cited in a Decision of

Rejection in a related Taiwanese Patent application. An English-language summary of the Decision of Rejection is enclosed as document AR23.

Document AL4 (TW 417219) appears to describe a BGA package. Document AL4 was cited in a Decision of Rejection in a related Taiwanese Patent application. An English-language summary of the Decision of Rejection is enclosed as document AR23. Also, please note that document AI11 (US 6,184,580 B1) appears to be a corresponding U.S. counterpart to document AL4.

- ☒ 7. Only copies of documents AM3, AJ4, AK4, AL4, AR4, AP5, AP23, AQ23 and AR23 are submitted herewith. The remaining documents are referenced in boxes 8 and 9 below.
- ☒ 8. Copies of the documents were cited by or submitted to the Office in an IDS that complies with 37 C.F.R. § 1.98(a)-(c) in Application No.10/101,751, filed March 21, 2002, which is relied upon for an earlier filing date under 35 U.S.C. § 120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).
- ☒ 9. No copies of U.S. patents and patent application publications cited on the attached Form PTO-1449 are submitted in accordance with 1276 OG 55 because this application was filed after June 30, 2003.
- ☒ 10. It is expected that the examiner will review the prosecution and cited art in the parent application no(s). 10/101,751, in accordance with MPEP 2001.06(b), and indicate in the next communication from the office that the art cited in the earlier prosecution history has been reviewed in connection with the present application.

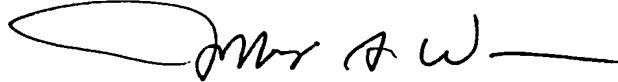


It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

A handwritten signature in black ink, appearing to read "Mr. J. W.", with a large, loopy initial "J" and a horizontal line extending to the right.

Jeffrey S. Weaver  
Attorney for Applicants  
Registration No. 45,608

Date: 8-12-01

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286280v1



FORM PTO-1449

# INFORMATION DISCLOSURE STATEMENT

ATTY. DOCKET NO.  
1875.1730001

APPLICATION NO.  
10/730,093

INVENTORS  
ZHAO *et al.*

FILING DATE  
December 9, 2003

ART UNIT  
2826

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA1	2001/0001505 A1	05/2001	Schueller <i>et al.</i>			
	AB1	2001/0045644 A1	11/2001	Huang			
	AC1	2002/0053731 A1	05/2002	Chao <i>et al.</i>			
	AD1	2002/0072214 A1	06/2002	Yuzawa <i>et al.</i>			
	AE1	2002/0079562 A1	06/2002	Zhao <i>et al.</i>			
	AF1	2002/0096767 A1	07/2002	Cote <i>et al.</i>			
	AG1	2002/0098617 A1	07/2002	Lee <i>et al.</i>			
	AH1	2002/0109226 A1	08/2002	Khan <i>et al.</i>			
	AI1	2002/0135065 A1	09/2002	Zhao <i>et al.</i>			

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ1	0 504 411 B1	06/1998	EP	H01L	23/04	N/A
	AK1	61-49446 A	03/1986	JP	H01L	23/36	No
	AL1	7-283336 A	10/1995	JP	H01L	23/12	No
	AM1	10-50877 A	02/1998	JP	H01L	23/12	No

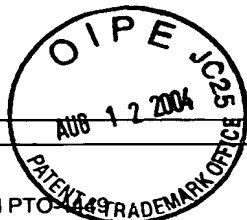
## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AN	<u>1</u>	Ahn, S.H. and Kwon, Y.S., "Popcorn Phenomena in a Ball Grid Array Package", <i>IEEE Transactions on Components, Packaging, and Manufacturing Technology Part B: Advanced Packaging</i> , IEEE, August 1995, Vol. 18, No. 3, pp. 491-495.
	AO	<u>1</u>	Amkor Electronics, "Amkor BGA Packaging: Taking The World By Storm", <i>Electronic Packaging &amp; Production</i> , Cahners Publishing Company, May 1994, page unknown.
	AP	<u>1</u>	Anderson, L. and Trabucco, B., "Solder Attachment Analysis of Plastic BGA Modules", <i>Surface Mount International Conference</i> , Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 189-194.
	AQ	<u>1</u>	Andrews, M., "Trends in Ball Grid Array Technology," <i>Ball Grid Array National Symposium</i> , March 29-30, 1995, Dallas, Texas, 10 pages.
	AR	<u>1</u>	Attarwala, A.I. Dr. and Stierman, R., "Failure Mode Analysis of a 540 Pin Plastic Ball Grid Array", <i>Surface Mount International Conference</i> , Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 252-257.

EXAMINER

DATE CONSIDERED

**EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.



FORM PTO-449

## INFORMATION DISCLOSURE STATEMENT

ATTY. DOCKET NO.

1875.1730001

APPLICATION NO.

10/730,093

INVENTORS

ZHAO *et al.*

FILING DATE

December 9, 2003

ART UNIT

2826

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA2	2002/0171144 A1	11/2002	Zhang <i>et al.</i>			
	AB2	2002/0180040 A1	12/2002	Camenforte <i>et al.</i>			
	AC2	2002/0185717 A1	12/2002	Eghan <i>et al.</i>			
	AD2	2003/0111726 A1	06/2003	Khan <i>et al.</i>			
	AE2	2003/0138613 A1	07/2003	Thoman <i>et al.</i>			
	AF2	3,790,866	02/1974	Meyer <i>et al.</i>			
	AG2	4,611,238	09/1986	Lewis <i>et al.</i>			
	AH2	5,045,921	09/1991	Lin <i>et al.</i>			
	AI2	5,065,281	11/1991	Hernandez <i>et al.</i>			

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ2	10-189835 A	07/1998	JP	H01L	23/24	No
✓	AK2	10-247702 A	09/1998	JP	H01L	23/12	Yes (Doc. AR4)
	AL2	10-247703 A	09/1998	JP	H01L	23/12	No
	AM2	11-17064 A	01/1999	JP	H01L	23/14	No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AN	2	Banerji, K., "Development of the Slightly Larger Than IC Carrier (SLICC)", <i>Journal of Surface Mount Technology</i> , July 1994, pp. 21-26.
	AO	2	Bauer, C., Ph.D., "Partitioning and Die Selection Strategies for Cost Effective MCM Designs", <i>Journal of Surface Mount Technology</i> , October 1994, pp. 4-9.
	AP	2	Bernier, W.E. <i>et al.</i> , "BGA vs. QFP: A Summary of Tradeoffs for Selection of High I/O Components", <i>Surface Mount International Conference Proceedings</i> , Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 181-185.
	AQ	2	Burgos, J. <i>et al.</i> , "Achieving Accurate Thermal Characterization Using a CFD Code-- A Case Study of Plastic Packages", <i>IEEE Transactions on Components, Packaging, and Manufacturing Technology Part A</i> , IEEE, December 1995, Vol. 18, No. 4, pp. 732-738.
	AR	2	Chadima, M., "Interconnecting Structure Manufacturing Technology," <i>Ball Grid Array National Symposium</i> , Dallas, Texas, March 29-30, 1995, 12 pages.

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

FORM PTO-1449  INFORMATION DISCLOSURE STATEMENT	ATTY. DOCKET NO. 1875.1730001	APPLICATION NO. 10/730,093
	INVENTORS ZHAO <i>et al.</i>	
	FILING DATE December 9, 2003	ART UNIT 2826

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA3	5,173,766	12/1992	Long <i>et al.</i>			
	AB3	5,208,504	05/1993	Parker <i>et al.</i>			
	AC3	5,216,278	06/1993	Lin <i>et al.</i>			
	AD3	5,285,352	02/1994	Pastore <i>et al.</i>			
	AE3	5,291,062	03/1994	Higgins, III			
	AF3	5,294,826	03/1994	Marcantonio <i>et al.</i>			
	AG3	5,366,589	11/1994	Chang			
	AH3	5,394,009	02/1995	Loo			
	AI3	5,397,917	03/1995	Ommen <i>et al.</i>			

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
✓	AJ3	11-102989 A	04/1999	JP	H01L	23/12	Yes (Doc. AP5)
	AK3	2000-286294 A	10/2000	JP	H01L	21/60	No
	AL3	2001-68512 A	03/2001	JP	H01L	21/60	No
✓	AM3	0 573 297 A2	12/1993	EP	H01L	23/498	N/A

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AN	<u>3</u>	Chanchani, R. <i>et al.</i> , "Mini BGA: Pad and Pitch Ease Die Test and Handling", <i>Advanced Packaging</i> , IHS Publishing Group, May/June 1995, pp. 34 and 36-37.
	AO	<u>3</u>	Chung, T.C. <i>et al.</i> , "Rework of Plastic, Ceramic, and Tape Ball Grid Array Assemblies", <i>Ball Grid Array National Symposium Proceedings</i> , Dallas, Texas, March 29-30, 1995, pp. 1-15.
	AP	<u>3</u>	Cole, M.S. and Caulfield, T. "A Review of Available Ball Grid Array (BGA) Packages", <i>Journal of Surface Mount Technology</i> , Surface Mount Technology Association, January 1996, Vol. 9, pp. 4-11.
	AQ	<u>3</u>	Cole, M.S. and Caulfield, T., "Ball Grid Array Packaging", <i>Surface Mount International Conference Proceedings</i> , Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 147-153.
	AR	<u>3</u>	Dobers, M. and Seyffert, M., "Low Cost MCMs: BGAs Provide a Fine-Pitch Alternative", <i>Advanced Packaging</i> , IHS Publishing Group, September/October 1994, Vol. 3, No. 5, pp. 28, 30 and 32.

EXAMINER	DATE CONSIDERED
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**EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

FORM PTO-1449 INFORMATION DISCLOSURE STATEMENT	ATTY. DOCKET NO. 1875.1730001	APPLICATION NO. 10/730,093
	INVENTORS ZHAO <i>et al.</i>	
	FILING DATE December 9, 2003	ART UNIT 2826

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA4	5,397,921	03/1995	Karnazos			
	AB4	5,409,865	04/1995	Karnazos			
	AC4	5,433,631	07/1995	Beaman <i>et al.</i>			
	AD4	5,438,216	08/1995	Juskey <i>et al.</i>			
	AE4	5,474,957	12/1995	Urushima			
	AF4	5,490,324	02/1996	Newman			
	AG4	5,534,467	07/1996	Rostoker			
	AH4	5,541,450	07/1996	Jones <i>et al.</i>			
	AI4	5,552,635	09/1996	Kim <i>et al.</i>			

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
✓	AJ4	2 803 098 A3	06/2001	FR	H01L	23/367	No
✓	AK4	383908	03/2000	TW	H01L	23/34	No
	AL4	417219 ✓	01/2001	TW	H01L	21/60	No
	AM4						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AN	<u>4</u>	Dody, G. and Burnette, T., "BGA Assembly Process and Rework", <i>Journal of Surface Mount Technology</i> , Surface Mount Technology Association, January 1996, Vol. 9, pp. 39-45.
AO	<u>4</u>	Edwards, D. <i>et al.</i> , "The Effect of Internal Package Delaminations on the Thermal Performance of PQFP, Thermally Enhanced PQFP, LOC and BGA Packages", <i>45th Electronic Components &amp; Technology Conference</i> , IEEE, May 21-24, 1995, Las Vegas, NV, pp. 285-292.
AP	<u>4</u>	Ejim, T.L. <i>et al.</i> , "Designed Experiment to Determine Attachment Reliability Drivers for PBGA Packages", <i>Journal of Surface Mount Technology</i> , Surface Mount Technology Association, January 1996, Vol. 9, pp. 30-38.
AQ	<u>4</u>	English-language Abstract of JP 10-189835, published July 21, 1998, 1 page, printed from <a href="http://v3.espacenet.com">http://v3.espacenet.com</a> .
AR	<u>4</u>	English-language Translation of JP 10-247702, published September 14, 1998, 8 pages.

EXAMINER

DATE CONSIDERED

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FORM PTO-1449 <b>INFORMATION DISCLOSURE STATEMENT</b>				ATTY. DOCKET NO. 1875.1730001		APPLICATION NO. 10/730,093	
				INVENTORS ZHAO <i>et al.</i>			
				FILING DATE December 9, 2003		ART UNIT 2826	
<b>U.S. PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA5	5,572,405	11/1996	Wilson <i>et al.</i>			
	AB5	5,578,869	11/1996	Hoffman <i>et al.</i>			
	AC5	5,583,377	12/1996	Higgins, III			
	AD5	5,583,378	12/1996	Marrs <i>et al.</i>			
	AE5	5,642,261	06/1997	Bond <i>et al.</i>			
	AF5	5,648,679	07/1997	Chillara <i>et al.</i>			
	AG5	5,650,659	07/1997	Mostafazadeh <i>et al.</i>			
	AH5	5,650,662	07/1997	Edwards <i>et al.</i>			
	AI5	5,691,567	11/1997	Lo <i>et al.</i>			
<b>FOREIGN PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ5						Yes No
	AK5						Yes No
	AL5						Yes No
	AM5						Yes No
<b>OTHER (Including Author, Title, Date, Pertinent Pages, etc.)</b>							
	AN	<u>5</u>	English-language Abstract of JP 10-247703, published September 14, 1998, 1 page, printed from <a href="http://v3.espacenet.com">http://v3.espacenet.com</a> .				
	AO	<u>5</u>	English-language Abstract of JP 10-050877, published February 20, 1998, 1 page, printed from <a href="http://v3.espacenet.com">http://v3.espacenet.com</a> .				
	AP	<u>5</u>	English-language Translation of JP 11-102989, published April 14, 1999, 24 pages.				
	AQ	<u>5</u>	English-language Abstract of JP 11-017064, published January 22, 1999, 1 page, printed from <a href="http://v3.espacenet.com">http://v3.espacenet.com</a> .				
	AR	<u>5</u>	English-language Abstract of JP 2000-286294, published October 13, 2000, 1 page, printed from <a href="http://v3.espacenet.com">http://v3.espacenet.com</a> .				
EXAMINER					DATE CONSIDERED		

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				INVENTORS ZHAO <i>et al.</i>			
				FILING DATE December 9, 2003		ART UNIT 2826	
<b>U.S. PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA6	5,717,252	02/1998	Nakashima <i>et al.</i>			
	AB6	5,736,785	04/1998	Chiang <i>et al.</i>			
	AC6	5,796,170	08/1998	Marcantonio			
	AD6	5,798,909	08/1998	Bhatt <i>et al.</i>			
	AE6	5,801,432	09/1998	Rostoker <i>et al.</i>			
	AF6	5,835,355	11/1998	Dordi			
	AG6	5,843,808	12/1998	Karnazos			
	AH6	5,844,168	12/1998	Schueller <i>et al.</i>			
	AI6	5,856,911	01/1999	Riley			
<b>FOREIGN PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ6						Yes No
	AK6						Yes No
	AL6						Yes No
	AM6						Yes No
<b>OTHER (Including Author, Title, Date, Pertinent Pages, etc.)</b>							
	AN	<u>6</u>	English-language Abstract of JP 2001-068512, published March 16, 2001, 1 page, printed from <a href="http://v3.espacenet.com">http://v3.espacenet.com</a> .				
	AO	<u>6</u>	English-language Abstract of JP 61-049446, published March 11, 1986, 1 page, printed from <a href="http://v3.espacenet.com">http://v3.espacenet.com</a> .				
	AP	<u>6</u>	English-language Abstract of JP 7-283336, published October 27, 1995, 1 page, printed from <a href="http://v3.espacenet.com">http://v3.espacenet.com</a> .				
	AQ	<u>6</u>	Ewanich, J. <i>et al.</i> , "Development of a Tab (TCP) Ball Grid Array Package", <i>Proceedings of the 1995 International Electronics Packaging Conference</i> , San Diego, CA, September 24-27, 1995, pp. 588-594.				
	AR	<u>6</u>	Fauser, S. <i>et al.</i> , "High Pin-Count PBGA Assembly", <i>Circuits Assembly</i> , February 1995, Vol. 6, No. 2, pp. 36-38 and 40.				
EXAMINER					DATE CONSIDERED		
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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA7	5,866,949	02/1999	Schueller			
	AB7	5,883,430	03/1999	Johnson			
	AC7	5,889,321	03/1999	Culnane <i>et al.</i>			
	AD7	5,889,324	03/1999	Suzuki			
	AE7	5,894,410	04/1999	Barrow			
	AF7	5,895,967	04/1999	Stearns <i>et al.</i>			
	AG7	5,901,041	05/1999	Davies <i>et al.</i>			
	AH7	5,903,052	05/1999	Chen <i>et al.</i>			
	AI7	5,905,633	05/1999	Shim <i>et al.</i>			

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ7						Yes No
	AK7						Yes No
	AL7						Yes No
	AM7						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)			
	AN	<u>7</u>	Fausser, Suzanne <i>et al.</i> , "High Pin Count PBGA Assembly: Solder Defect Failure Modes and Root Cause Analysis", <i>Surface Mount International, Proceedings of The Technical Program</i> , Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 169-174.
	AO	<u>7</u>	Ferguson, M. "Ensuring High-Yield BGA Assembly", <i>Circuits Assembly</i> , February 1995, Vol. 6, No. 2, pp. 54, 56 and 58.
	AP	<u>7</u>	Freda, M., "Laminate Technology for IC Packaging", <i>Electronic Packaging &amp; Production</i> , Cahners Publishing Company, October 1995, Vol. 35, No. 11, pp. S4-S5.
	AQ	<u>7</u>	Freedman, M., "Package Size and Pin-Out Standardization", <i>Ball Grid Array National Symposium</i> , March 29-30, 1995, 6 pages.
	AR	<u>7</u>	Freyman, B. and Pennisi, R., "Overmolded Plastic Pad Array Carriers (OMPAC): A Low Cost, High Interconnect Density IC Packaging Solution for Consumer and Industrial Electronics", <i>41st Electronic Components &amp; Technology Conference</i> , IEEE, May 11-16, 1991, pp. 176-182.

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	AA8	5,907,189	05/1999	Mertol			
	AB8	5,907,903	06/1999	Ameen <i>et al.</i>			
	AC8	5,920,117	07/1999	Sono <i>et al.</i>			
	AD8	5,949,137	09/1999	Domadia <i>et al.</i>			
	AE8	5,953,589	09/1999	Shim <i>et al.</i>			
	AF8	5,972,734	10/1999	Carichner <i>et al.</i>			
	AG8	5,977,626	11/1999	Wang <i>et al.</i>			
	AH8	5,977,633	11/1999	Suzuki <i>et al.</i>			
	AI8	5,982,621	11/1999	Li			
<b>FOREIGN PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ8						Yes No
	AK8						Yes No
	AL8						Yes No
	AM8						Yes No
<b>OTHER (Including Author, Title, Date, Pertinent Pages, etc.)</b>							
	AN	<u>8</u>	Freyman, B. <i>et al.</i> , "Surface Mount Process Technology for Ball Grid Array Packaging", <i>Surface Mount International Conference Proceedings</i> , Surface Mount International, August 29-September 2, 1993, San Jose, California, pp. 81-85.				
	AO	<u>8</u>	Freyman, B. <i>et al.</i> , "The Move to Perimeter Plastic BGAs", <i>Surface Mount International Conference Proceedings</i> , San Jose, CA, August 29-31, 1995, pp. 373-382.				
	AP	<u>8</u>	Freyman, B., "Trends in Plastic BGA Packaging," <i>Ball Grid Array National Symposium</i> , Dallas, Texas, March 29-30, 1995, 44 pages.				
	AQ	<u>8</u>	Gilleo, K., "Electronic Polymers: Die Attach and Oriented Z-Axis Films", <i>Advanced Packaging</i> , IHS Publishing Group, September/October 1994, Vol. 3, No. 5, pp. 37-38, 40 and 42.				
	AR	<u>8</u>	Guenin, B. <i>et al.</i> , "Analysis of a Thermally Enhanced Ball Grid Array Package", <i>IEEE Transactions on Components, Packaging, and Manufacturing Technology, Part A</i> , IEEE Components, Packaging, and Manufacturing Technology Society, December 1995, Vol. 18, No. 4, pp. 749-757.				
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	AA9	5,986,340	11/1999	Mostafazadeh <i>et al.</i>			
	AB9	5,986,885	11/1999	Wyland			
	AC9	5,998,241	12/1999	Niwa			
	AD9	5,999,415	12/1999	Hamzehdoost			
	AE9	6,002,147	12/1999	Iovdalsky <i>et al.</i>			
	AF9	6,002,169	12/1999	Chia <i>et al.</i>			
	AG9	6,011,304	01/2000	Mertol			
	AH9	6,011,694	01/2000	Hirakawa			
	AI9	6,020,637	02/2000	Karnazos			

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ9						Yes No
	AK9						Yes No
	AL9						Yes No
	AM9						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)			
	AN	<u>9</u>	Hart, C. "Vias in Pads", <i>Circuits Assembly</i> , February 1995, Vol. 6, No. 2, pp. 42, 44-46 and 50.
	AO	<u>9</u>	Hart, C., "Vias in Pads for Coarse and Fine Pitch Ball Grid Arrays", <i>Surface Mount International Conference Proceedings</i> , Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 203-207.
	AP	<u>9</u>	Hattas, D., "BGAs Face Production Testing: New Package Offers Promise but Must Clear Technology Hurdles.", <i>Advanced Packaging</i> , IHS Publishing Group, Summer 1993, Vol. 2, No. 3, pp. 44-46.
	AQ	<u>9</u>	Hayden, T.F. <i>et al.</i> , "Thermal & Electrical Performance and Reliability Results for Cavity-Up Enhanced BGAs", <i>Electronic Components and Technology Conference</i> , IEEE, 1999, pp. 638-644.
	AR	<u>9</u>	Heitmann, R., "A Direct Attach Evolution: TAB, COB and Flip Chip Assembly Challenges", <i>Advanced Packaging</i> , IHS Publishing Group, July/August 1994, Vol. 3, No. 4, pp. 95-99.

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	AA10	6,028,358	02/2000	Suzuki			
	AB10	6,034,427	03/2000	Lan <i>et al.</i>			
	AC10	6,057,601	05/2000	Lau <i>et al.</i>			
	AD10	6,060,777	05/2000	Jamieson <i>et al.</i>			
	AE10	6,069,407	05/2000	Hamzehdoost			
	AF10	6,077,724	06/2000	Chen			
	AG10	6,084,297	07/2000	Brooks <i>et al.</i>			
	AH10	6,084,777	07/2000	Kalidas <i>et al.</i>			
	AI10	6,114,761	09/2000	Mertol <i>et al.</i>			
<b>FOREIGN PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ10						Yes No
	AK10						Yes No
	AL10						Yes No
	AM10						Yes No
<b>OTHER (Including Author, Title, Date, Pertinent Pages, etc.)</b>							
	AN	<u>10</u>	Hodson, T., "Study Examines BGA Use", <i>Electronic Packaging &amp; Production</i> , March 1993, page unknown.				
	AO	<u>10</u>	Holden, H., "The Many Techniques of Small Via Formation for Thin Boards", <i>The Institute for Interconnecting and Packaging Electronic Circuits Ball Grid Array National Symposium</i> , San Diego, CA, January 18-19, 1996, pp. 1-7.				
	AP	<u>10</u>	Houghten, J., "New Package Takes On QFPs", <i>Advanced Packaging</i> , IHS Publishing Group, Winter 1993, Vol. 2, No. 1, pp. 38-39.				
	AQ	<u>10</u>	Houghten, J.L., "Plastic Ball-Grid Arrays Continue To Evolve", <i>Electronic Design</i> , February 6, 1995, pp. 141-146.				
	AR	<u>10</u>	"How To Give Your BGAs A Better Bottom Line.", <i>Advanced Packaging</i> , IHS Publishing Group, May/June 1995, page unknown.				
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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA11	6,117,797	09/2000	Hembree			
	AB11	6,122,171	09/2000	Akram <i>et al.</i>			
	AC11	6,133,064	10/2000	Nagarajan <i>et al.</i>			
	AD11	6,140,707	10/2000	Plepys <i>et al.</i>			
	AE11	6,160,705	12/2000	Stearns <i>et al.</i>			
	AF11	6,162,659	12/2000	Wu			
	AG11	6,163,458	12/2000	Li			
	AH11	6,166,434	12/2000	Desai <i>et al.</i>			
-	AI11	6,184,580 B1	02/2001	Lin			
<b>FOREIGN PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ11						Yes No
	AK11						Yes No
	AL11						Yes No
	AM11						Yes No
<b>OTHER (Including Author, Title, Date, Pertinent Pages, etc.)</b>							
	AN	<u>11</u>	Huang, W. and Ricks, J., "Electrical Characterization of PBGA for Communication Applications by Simulation and Measurement", <i>National Electronic Packaging and Production Conference West '95</i> , February 26-March 2, 1995, Anaheim, California, pp. 300-307.				
	AO	<u>11</u>	Hundt, M. <i>et al.</i> , "Thermal Enhancements of Ball Grid Arrays", <i>National Electronic Packaging and Production Conference West '95</i> , Reed Exhibition Companies, Anaheim, CA, February 25-29, 1996, pp. 702-711.				
	AP	<u>11</u>	Hutchins, C.L., "Understanding Grid Array Packages", <i>Surface Mount Technology Magazine</i> , IHS Publishing Group, November 1994, Vol. 8, No. 11, pp. 12-13.				
	AQ	<u>11</u>	Hwang, J.S., "A Hybrid of QFP and BGA Architectures", <i>Surface Mount Technology Magazine</i> , IHS Publishing Group, February 1995, Vol. 9, No. 2, p. 18.				
	AR	<u>11</u>	Hwang, J.S., "Reliability of BGA Solder Interconnections", <i>Surface Mount Technology Magazine</i> , IHS Publishing Group, September 1994, Vol. 8, No. 9, pp. 14-15.				
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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA12	6,201,300 B1	03/2001	Tseng <i>et al.</i>			
	AB12	6,207,467 B1	03/2001	Vaiyapuri <i>et al.</i>			
	AC12	6,212,070 B1	04/2001	Atwood <i>et al.</i>			
	AD12	6,242,279 B1	06/2001	Ho <i>et al.</i>			
	AE12	6,246,111 B1	06/2001	Huang <i>et al.</i>			
	AF12	6,278,613 B1	08/2001	Fernandez <i>et al.</i>			
	AG12	6,288,444 B1	09/2001	Abe <i>et al.</i>			
	AH12	6,313,521 B1	11/2001	Baba			
-	AI12	6,313,525 B1	11/2001	Sasano			
<b>FOREIGN PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ12						Yes No
	AK12						Yes No
	AL12						Yes No
	AM12						Yes No
<b>OTHER (Including Author, Title, Date, Pertinent Pages, etc.)</b>							
	AN	<u>12</u>	Johnson, R. <i>et al.</i> , "A Feasibility Study of of Ball Grid Array Packaging", <i>National Electronic Packaging and Production Conference East '93</i> , Boston, Massachusetts, June 14-17, 1993, pp. 413-422.				
	AO	<u>12</u>	Johnson, R. <i>et al.</i> , "Thermal Characterization of 140 and 225 Pin Ball Grid Array Packages", <i>National Electronic Packaging &amp; Production Conference East '93</i> , Boston, Massachusetts, June 14-17, 1993, pp. 423-430.				
	AP	<u>12</u>	Johnston, P. "Printed Circuit Board Design Guidelines for Ball Grid Array Packages", <i>Journal of Surface Mount Technology</i> , Surface Mount Technology Association, January 1996, Vol. 9, pp. 12-18.				
	AQ	<u>12</u>	Johnston, P., "Land Pattern Interconnectivity Schemes", <i>Ball Grid Array National Symposium</i> , Dallas, Texas, March 29-30, 1995, pages 2-21.				
	AR	<u>12</u>	Karnazos, M. , "An EPBGA Alternative," <i>Advanced Packaging</i> , June 1998, pages 90, 92, 94, and 96.				
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	AA13	6,347,037 B2	02/2002	Iijima <i>et al.</i>			
	AB13	6,362,525 B1	03/2002	Rahim			
	AC13	6,369,455 B1	04/2002	Ho <i>et al.</i>			
	AD13	6,380,623 B1	04/2002	Demore			
	AE13	6,462,274 B1	10/2002	Shim <i>et al.</i>			
	AF13	6,472,741 B1	10/2002	Chen <i>et al.</i>			
	AG13	6,525,942 B2	02/2003	Huang <i>et al.</i>			
	AH13	6,528,869 B1	03/3003	Glenn <i>et al.</i>			
-	AI13	6,528,892 B2	03/3003	Caletka <i>et al.</i>			
<b>FOREIGN PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ13						Yes No
	AK13						Yes No
	AL13						Yes No
	AM13						Yes No
<b>OTHER (Including Author, Title, Date, Pertinent Pages, etc.)</b>							
	AN	<u>13</u>	Kawahara, T. <i>et al.</i> , "Ball Grid Array Type Package By Using of New Encapsulation Method", <i>Proceedings of the 1995 International Electronics Packaging Conference</i> , San Diego, CA, September 24-27, 1995, pp. 577-587.				
	AO	<u>13</u>	Knickerbocker, J.U. and Cole, M.S., "Ceramic BGA: A Packaging Alternative", <i>Advanced Packaging</i> , IHS Publishing Group, January/February 1995, Vol. 4, No. 1, pp. 20, 22 and 25.				
	AP	<u>13</u>	Kromann, G., <i>et al.</i> , "A Hi-Density C4/CBGA Interconnect Technology for a CMOS Microprocessor", <i>National Electronic Packaging and Production Conference West '95</i> , IEEE, February 26-March 2, 1995, Anaheim, California, pp. 1523-1529.				
	AQ	<u>13</u>	Kunkle, R., "Discrete Wiring for Array Packages", <i>Ball Grid Array National Symposium</i> , Dallas, Texas, March 29-30, 1995, 9 pages.				
	AR	<u>13</u>	Lall, B. <i>et al.</i> , "Methodology for Thermal Evaluation of Multichip Modules", <i>IEEE Transactions on Components, Packaging, and Manufacturing Technology Part A</i> , IEEE, December 1995, Vol. 18, No. 4, pp. 758-764.				
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	AA14	6,541,832 B2	04/2003	Coyle			
	AB14	6,545,351 B1	04/2003	Jamieson <i>et al.</i>			
	AC14	6,552,266 B2	04/2003	Carden <i>et al.</i>			
	AD14	6,552,428 B1	04/2003	Huang <i>et al.</i>			
	AE14	6,552,430 B1	04/2003	Perez <i>et al.</i>			
	AF14	6,563,712 B2	05/2003	Akram <i>et al.</i>			
	AG14	6,583,516 B2	06/2003	Hashimoto			
	AH14	6,617,193 B1	09/2003	Toshio <i>et al.</i>			
-	AI14	6,664,617 B2	12/2003	Siu			

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ14						Yes No
	AK14						Yes No
	AL14						Yes No
	AM14						Yes No

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	AN	<u>14</u>	Lasance, C. <i>et al.</i> , "Thermal Characterization of Electronic Devices with Boundary Condition Independent Compact Models", <i>IEEE Transactions on Components, Packaging, and Manufacturing Technology Part A</i> , IEEE Components, Packaging, and Manufacturing Technology Society, December 1995, Vol. 18, No. 4, pp. 723-731.
	AO	<u>14</u>	Lau, J. <i>et al.</i> , "No Clean Mass Reflow of Large Plastic Ball Grid Array Packages", <i>Circuit World</i> , Wela Publications Ltd., Vol. 20, No. 3, March 1994, pp.15-22.
	AP	<u>14</u>	Lau, J., <i>Ball Grid Array Technology</i> , McGraw-Hill Inc., 1995, entire book submitted.
	AQ	<u>14</u>	"Literature Review", Special Supplement to <i>Electronic Packaging &amp; Production</i> , February 1995, Cahners Publication, 10 pages.
	AR	<u>14</u>	LSI LOGIC Package Selector Guide, Second Edition, LSI Logic Corporation, 1994-1995, entire document submitted.

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				INVENTORS ZHAO <i>et al.</i>			
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<b>U.S. PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA15	2002/0079572 A1	06/2002	Khan <i>et al.</i>			
	AB15	2002/0185720 A1	12/2002	Khan <i>et al.</i>			
	AC15	2002/0185722 A1	12/2002	Zhao <i>et al.</i>			
	AD15	2002/0185734 A1	12/2002	Zhao <i>et al.</i>			
	AE15	2002/0185750 A1	12/2002	Khan <i>et al.</i>			
	AF15	2002/0190361 A1	12/2002	Zhao <i>et al.</i>			
	AG15	2002/0190362 A1	12/2002	Khan <i>et al.</i>			
	AH15	2003/0057550 A1	03/2003	Zhao <i>et al.</i>			
	AI15	2003/0146503 A1	08/2003	Khan <i>et al.</i>			
<b>FOREIGN PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ15						Yes No
	AK15						Yes No
	AL15						Yes No
	AM15						Yes No
<b>OTHER (Including Author, Title, Date, Pertinent Pages, etc.)</b>							
	AN	<u>15</u>	"LTCC MCMs Lead to Ceramic BGAs," <i>Advanced Packaging</i> , IHS Publishing Group, September/October 1994, Vol. 3, No. 5, pp. 14-15.				
	AO	<u>15</u>	Mak, Dr. W.C. <i>et al.</i> , "Increased SOIC Power Dissipation Capability Through Board Design and Finite Element Modeling", <i>Journal of Surface Mount Technology</i> , Surface Mount International, October 1994, pp. 33-41.				
	AP	<u>15</u>	Marrs, R. <i>et al.</i> , "Recent Technology Breakthroughs Achieved with the New SuperBGA® Package", <i>1995 International Electronics Packaging Conference</i> , San Diego, California, September 24-27, 1995, pp. 565-576.				
	AQ	<u>15</u>	Marrs, R.C. and Olachea, G., "BGAs For MCMs: Changing Markets and Product Functionality", <i>Advanced Packaging</i> , IHS Publishing Group, September/October 1994, Vol. 3, No. 5, pp. 48, 50, and 52.				
	AR	<u>15</u>	Matthew, L.C. <i>et al.</i> , "Area Array Packaging: KGD in a Chip-Sized Package", <i>Advanced Packaging</i> , IHS Publishing Group, July/August 1994, pp. 91-94.				
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	AA16	2003/0146506 A1	08/2003	Khan <i>et al.</i>			
	AB16	2003/0146509 A1	08/2003	Zhao <i>et al.</i>			
	AC16	2003/0146511 A1	08/2003	Zhao <i>et al.</i>			
	AD16	2003/0179549 A1	09/2003	Zhong <i>et al.</i>			
	AE16	2003/0179556 A1	09/2003	Zhao <i>et al.</i>			
	AF16	10/284,340	10/31/2002	Zhao <i>et al.</i>			
	AG16						
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<b>FOREIGN PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ16						Yes No
	AK16						Yes No
	AL16						Yes No
	AM16						Yes No
<b>OTHER (Including Author, Title, Date, Pertinent Pages, etc.)</b>							
	AN	<u>16</u>	Mawer, A. <i>et al.</i> , "Plastic BGA Solder Joint Reliability Considerations", <i>Surface Mount International Conference Proceedings</i> , Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 239-251.				
	AO	<u>16</u>	Mazzullo, T. and Schaertl, L., "How IC Packages Affect PCB Design", <i>Surface Mount Technology Magazine</i> , February 1995, Vol. 9, No. 2, pp. 114-116.				
	AP	<u>16</u>	Mearig, J., "An Overview of Manufacturing BGA Technology", <i>National Electronic Packaging and Production Conference West '95</i> , February 26-March 2, 1995, Anaheim, California, pp. 295-299.				
	AQ	<u>16</u>	Mertol, A., "Application of the Taguchi Method on the Robust Design of Molded 225 Plastic Ball Grid Array Packages", <i>IEEE Transactions on Components, Packaging, and Manufacturing Technology Part B: Advanced Packaging</i> , IEEE, November 1995, Vol. 18, No. 4, pp. 734-743.				
	AR	<u>16</u>	Mescher, P. and Phelan, G., "A Practical Comparison of Surface Mount Assembly for Ball Grid Array Components", <i>Surface Mount International Conference Proceedings</i> , Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 164-168.				
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	AA17						
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<b>FOREIGN PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ17						Yes No
	AK17						Yes No
	AL17						Yes No
	AM17						Yes No
<b>OTHER (Including Author, Title, Date, Pertinent Pages, etc.)</b>							
	AN	<u>17</u>	Mulgaonker, S. <i>et al.</i> , "An Assessment of the Thermal Performance of the PBGA Family", <i>Eleventh Annual IEEE Semiconductor Thermal Measurement and Management Symposium</i> , IEEE, San Jose, CA, February 7-9, 1995, pp. 17-27.				
	AO	<u>17</u>	"New PBGA Pushes Technology to Outer Limits", <i>Advanced Packaging</i> , HIS Publishing Group, January/February 1995, page 11.				
	AP	<u>17</u>	Olachea, G., "Managing Heat: A Focus on Power IC Packaging", <i>Electronic Packaging &amp; Production (Special Supplement)</i> , Cahners Publishing Company, November 1994, pp. 26-28.				
	AQ	<u>17</u>	"Pad Array Improves Density", <i>Electronic Packaging &amp; Production</i> , Cahners Publishing Company, May 1992, pp. 25-26.				
	AR	<u>17</u>	Partridge, J. and Viswanadham, P., "Organic Carrier Requirements for Flip Chip Assemblies", <i>Journal of Surface Mount Technology</i> , Surface Mount Technology Association, July 1994, pp. 15-20.				
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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ18						Yes No
	AK18						Yes No
	AL18						Yes No
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	AN	<u>18</u>	Ramirez, C. and Fauser, S., "Fatigue Life Comparison of The Perimeter and Full Plastic Ball Grid Array", <i>Surface Mount International Conference Proceedings</i> , Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 258-266.
	AO	<u>18</u>	Rogren, P., "MCM-L Built on Ball Grid Array Formats", <i>National Electronic Packaging and Production Conference West '94</i> , February 27 - March 4, 1994, Anaheim, California, pp. 1277-1282.
	AP	<u>18</u>	Rooks, S., "X-Ray Inspection of Flip Chip Attach Using Digital Tomosynthesis", <i>Surface Mount International Proceedings of The Technical Program</i> , August 28-September 1, 1994, San Jose, California, pp. 195-202.
	AQ	<u>18</u>	Rukavina, J., "Attachment Methodologies: Ball Grid Array Technology", <i>Ball Grid Array National Symposium</i> , Dallas, Texas, March 29-30, 1995, 36 pages.
	AR	<u>18</u>	Sack, T., "Inspection Technology", <i>Ball Grid Array National Symposium</i> , Dallas, Texas, March 29-30, 1995, pages 1-41.

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	AJ19						Yes No
	AK19						Yes No
	AL19						Yes No
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## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AN	<u>19</u>	Sakaguchi, H., "BGA Mounting Technology," pgs. 1-4, date and source unknown.
	AO	<u>19</u>	Schmolze, C. and Fraser, A., "SPICE Modeling Helps Enhance BGA Performance", <i>Electronic Packaging &amp; Production</i> , January 1995, pp. 50-52.
	AP	<u>19</u>	Schueller, R.D. <i>et al.</i> , "Performance and Reliability of a Cavity Down Tape BGA Package," <i>IEEE Electronic Packaging Technology Conference</i> , 1997, pages 151-162.
	AQ	<u>19</u>	<i>Semiconductor Group Package Outlines Reference Guide</i> , Texas Instruments, 1995, entire document submitted.
	AR	<u>19</u>	Shimizu, J., "Plastic Ball Grid Array Coplanarity", <i>Surface Mount International Conference</i> , San Jose, California, August 31-September 2, 1993, pp. 86-91.

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	AJ20						Yes No
	AK20						Yes No
	AL20						Yes No
	AM20						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AN	<u>20</u>	Sigliano, R., "Using BGA Packages: An Appealing Technology in a QFP and Fine-Pitch Market", <i>Advanced Packaging</i> , IHS Publishing Group, March/April 1994, pp. 36-39.
	AO	<u>20</u>	Sirois, L., "Dispensing for BGA: Automated Liquid Dispensing in a High-Density Environment", <i>Advanced Packaging</i> , IHS Publishing Group, May/June 1995, pp. 38 and 41.
	AP	<u>20</u>	Solberg, V., "Interconnection Structure Preparation: Impact of Material Handling and PCB Surface Finish on SMT Assembly Process Yield", <i>Ball Grid Array National Symposium</i> , Dallas Texas, March 29-30, 1995, 9 pages.
	AQ	<u>20</u>	"Survival of the Fittest", <i>Advanced Packaging</i> , IHS Publishing Group, March/April 1995, page unknown.
	AR	<u>20</u>	Thompson, T., "Reliability Assessment of a Thin (Flex) BGA Using a Polyimide Tape Substrate", <i>International Electronics Manufacturing Technology Symposium</i> , IEEE, 1999, pp. 207-213.

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	AJ21						Yes No
	AK21						Yes No
	AL21						Yes No
	AM21						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AN	<u>21</u>	Tuck, J., "BGA Technology Branches Out", <i>Circuits Assembly</i> , February 1995, Vol. 6, No. 2, pp. 24, 26, and 28.
	AO	<u>21</u>	"Tutorial and Short Courses", <i>45th Electronic Components &amp; Technology Conference</i> , May 21-24, 1995, Las Vegas, Nevada, IEEE, 4 pages.
	AP	<u>21</u>	Vardaman, E. J. and Crowley, R.T., "Worldwide Trends In Ball Grid Array Developments", <i>National Electronic Packaging and Production Conference West '96</i> , Reed Exhibition Companies, Anaheim, CA, February 25-29, 1996, pp. 699-701.
	AQ	<u>21</u>	Walshak, D. and Hashemi, H., "BGA Technology: Current and Future Direction for Plastic, Ceramic and Tape BGAs", <i>Surface Mount International Conference Proceedings</i> , Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 157-163.
	AR	<u>21</u>	Walshak, D. and Hashemi, H., "Thermal Modeling of a Multichip BGA Package", <i>National Electronic Packaging and Production Conference West '94</i> , Reed Exhibition Companies, Anaheim, California, February 27-March 4, 1994, pp. 1266-1276.

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	AA22						
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	AJ22						Yes No
	AK22						Yes No
	AL22						Yes No
	AM22						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AN	<u>22</u>	Xie, H. <i>et al.</i> , "Thermal Solutions to Pentium Processors in TCP in Notebooks and Sub-Notebooks", <i>45th Electronic Components &amp; Technology Conference</i> , IEEE, Las Vegas, NV, May 21-24, 1995, pp. 201-210.
	AO	<u>22</u>	Yip, W.Y., "Package Characterization of a 313 Pin BGA", <i>National Electronic Packaging and Production Conference West '95</i> , Reed Exhibition Companies, February 26-March 2, 1995, Anaheim, California, pp. 1530-1541.
	AP	<u>22</u>	Zamborsky, E., "BGAs in the Assembly Process", <i>Circuits Assembly</i> , February 1995, Vol. 6, No. 2, pp. 60, 62-64.
	AQ	<u>22</u>	Zhao, Z., Ph.D., "IC Package Thermal Issues and Thermal Design," ASAT, Inc., January 14, 2000, 98 pages, presented at <i>2<sup>nd</sup> International Icepak User's Group Meeting</i> , Palo Alto, CA, on February 7, 2000.
	AR	<u>22</u>	Zhao, Z., Ph.D., "Thermal Design and Modeling of Packages," <i>IEEE Short Courses</i> , Broadcom Corporation, October 25, 2000, 95 pages.

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	AJ23						Yes No
	AK23						Yes No
	AL23						Yes No
	AM23						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AN	<u>23</u>	Zimmerman, M., "High Performance BGA Molded Packages for MCM Application", <i>Surface Mount International Conference Proceedings</i> , Surface Mount International, August 28-September 1, 1994, San Jose, California, pp. 175-180.
	AO	<u>23</u>	Zweig, G., "BGAs: Inspect the Process, Not the Product", <i>Electronic Packaging &amp; Production (Special Supplement)</i> , Cahners Publishing Company, August 1994 (Supplement), p. 41.
	AP	<u>23</u>	Freyman, B. and Petrucci, M., "High-Pincount PBGAs: Implementation Into Volume Manufacturing," <i>Advanced Packaging</i> , An IHS Group Publication, May/June 1995, pp. 44-46.
	AQ	<u>23</u>	English-language Abstract of FR 2803098, published June 29, 2001, 1 page, printed from <a href="http://v3.espacenet.com">http://v3.espacenet.com</a> .
	AR	<u>23</u>	English-language Summary of Decision of Rejection from Taiwanese Application No. 91108573, 5 pages.

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	AJ24						Yes No
	AK24						Yes No
	AL24						Yes No
	AM24						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AN	<u>24</u>	Zhao <i>et al.</i> , U.S. Patent Appl. No. 10/284,340, filed October 31, 2002, entitled "Ball Grid Array Package With Patterned Stiffener Layer," 137 pages.
	AO	<u>24</u>	
	AP	<u>24</u>	
	AQ	<u>24</u>	
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